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Due to the Presence of Foreign Gases", Rev. Mod. Phys., 29, 20 (1957) 10 W. R. HINDMARSH and J. M. FARR, "Collision Broadening of Spectral Lines by Neutral Atoms", Prog. In Quantum Electronics, 2, 141 (1972) 11 R. O. GARRETT and S. Y. CH'EN, "Pressure Effects of Foreign Gases on the Absorption Lines of Cesium. II. The Effects of Helium on the First Two Members of the Principal Series", Phys. Rev., 144, 66 (1966) 12 M. D. ROTONDARO and G. P. PERRAM, "Collisional Broadening and Shift of the Rubium D ₁ and D ₂ Lines by Rare Gases, H ₂ , D ₂ , N ₂ , CH ₄ , and CF ₄ ", J. Quant. Radiat. Transfer, 57, 497 (197) 13 L. KRAUSE, "Collisional Excitation Transfer Between the ² P _{1/2} and ² P _{3/2} Levels in Alkali Atoms", Applied Optics, 5, 1375 (1966) 14 E. S. HRYCYSHYN and L. KRAUSE, "Inelastic Collisions Between Excited Alkali Atoms and Molecules, VII. Sensitized Fluorescence and Quenching in Mixtures of Rubidium with H ₂ , HD, D ₂ , N ₂ , CH ₄ , CD ₄ , C ₂ H ₄ , and C ₂ H ₆ .", Can. J. Phys., 48, 2761 (1970) 15 E. WALENTYNOWICZ, et al., "Inelastic Collisions Between Excited Alkali Atoms and Molecules X. Temperature Dependence of Cross Sections for ² P _{1/2} ² P _{3/2} Mixing in Cesium, Induced in Collisions with Deuterated Hydrogens, Ethanes, and Propanes", Can. J. Phys., 52, 589 (1974). 16 Z. KONEFAL, "Observation of Collision Induced Processes in Rubium-Ethane Vapour", Optics Communications, 164, 95 (1999) 17 E. SPELLIER et al. "Quenching Cross Sections for Alkali-Inert Gas Collisions", Z. Phys., A291, 311 (1979) 18 B. A. GLUSHKO et al. "Processess of Stimulated Electronic Raman Scattering and Stimulated Resonance Emission in Potassium Vapor in the Presence of a Buffer Gas". Opt. Spectrosc (USSR), 52, 458 (1982) 19 A. A. DABAGYAN et al., "Stimulated Processes in Potassium Vapor in the Presence of a Buffer Gas". Sov. Phys., JETP, 58, 700 (1983) 20 A. A. DABAGYAN et al., "Development over time in the Induced Resonant Processes in Potassium Vapor, in the Presence of Collisions", Levestiya Alademii Nauk, SSR		9	S. CH'EN and M TAKEO	"Broadening and Shift	of Spectral Lines	╁╌
Spectral Lines by Neutral Atoms", Prog. In Quantum Electronics, 2, 141 (1972) 11 R. O. GARRETT and S. Y. CH'EN, "Pressure Effects of Foreign Gases on the Absorption Lines of Cesium. II. The Effects of Helium on the First Two Members of the Principal Series", Phys. Rev., 144, 66 (1966) 12 M. D. ROTONDARO and G. P. PERRAM, "Collisional Broadening and Shift of the Rubium D ₁ and D ₂ Lines by Rare Gases, H ₂ , D ₂ , N ₂ , CH ₄ , and CF ₄ ", J. Quant. Radiat. Transfer, 57, 497 (197) 13 L. KRAUSE, "Collisional Excitation Transfer Between the ² P _{1/2} and ² P _{3/2} Levels in Alkali Atoms", Applied Optics, 5, 1375 (1966) 14 E. S. HRYCYSHYN and L. KRAUSE, "Inelastic Collisions Between Excited Alkali Atoms and Molecules, VII. Sensitized Fluorescence and Quenching in Mixtures of Rubidium with H ₂ , HD, D ₂ , N ₂ , CH ₄ , CD ₄ , C ₂ H ₄ , and C ₂ H ₆ .", Can. J. Phys., 48, 2761 (1970) 15 E. WALENTYNOWICZ, et. al., "Inelastic Collisions Between Excited Alkali Atoms and Molecules X. Temperature Dependence of Cross Sections for ² P _{1/2} - ² P _{3/2} Mixing in Cesium, Induced in Collisions with Deuterated Hydrogens, Ethanes, and Propanes", Can. J. Phys., 52, 589 (1974). 16 Z. KONEFAL, "Observation of Collision Induced Processes in Rubium-Ethane Vapour", Optics Communications, 164, 95 (1999) 17 E. SPELLIER et al., "Quenching Cross Sections for Alkali-Inert Gas Collisions", Z. Phys., A291, 311 (1979) 18 B. A. GLUSHKO et al. "Processess of Stimulated Electronic Raman Scattering and Stimulated Resonance Emission in Potassium Vapor in the Presence of a Buffer Gas". Opt. Spectrosc (USSR), 52, 458 (1982) 19 A. A. DABAGYAN et al., "Stimulated Processes in Potassium Vapor in the Presence of a Buffer Gas", Sov. Phys., JETP, 58, 700 (1983) 20 A. A. DABAGYAN et al., "Development over time in the Induced Resonant Processes in Potassium Vapor, in the Presence of Collisions", Izvestiya Alademii Nauk, SSR, Seriya Fizicheskaya, 47, 1609 (1983)	In		Due to the Presence of Fo	reign Gases", Rev. Mod	. Phys., 29, 20	
Spectral Lines by Neutral Atoms", Prog. In Quantum Electronics, 2, 141 (1972) 11 R. O. GARRETT and S. Y. CH'EN, "Pressure Effects of Foreign Gases on the Absorption Lines of Cesium. II. The Effects of Helium on the First Two Members of the Principal Series", Phys. Rev., 144, 66 (1966) 12 M. D. ROTONDARO and G. P. PERRAM, "Collisional Broadening and Shift of the Rubium D ₁ and D ₂ Lines by Rare Gases, H ₂ , D ₂ , N ₂ , CH ₄ , and CF ₄ ", J. Quant. Radiat. Transfer, 57, 497 (197) 13 L. KRAUSE, "Collisional Excitation Transfer Between the ² P _{1/2} and ² P _{3/2} Levels in Alkali Atoms", Applied Optics, 5, 1375 (1966) 14 E. S. HRYCYSHYN and L. KRAUSE, "Inelastic Collisions Between Excited Alkali Atoms and Molecules, VII. Sensitized Fluorescence and Quenching in Mixtures of Rubidium with H ₂ , HD, D ₂ , N ₂ , CH ₄ , CD ₄ , C ₂ H ₄ , and C ₂ H ₆ .", Can. J. Phys., 48, 2761 (1970) 15 E. WALENTYNOWICZ, et. al., "Inelastic Collisions Between Excited Alkali Atoms and Molecules X. Temperature Dependence of Cross Sections for ² P _{1/2} - ² P _{3/2} Mixing in Cesium, Induced in Collisions with Deuterated Hydrogens, Ethanes, and Propanes", Can. J. Phys., 52, 589 (1974). 16 Z. KONEFAL, "Observation of Collision Induced Processes in Rubium-Ethane Vapour", Optics Communications, 164, 95 (1999) 17 E. SPELLIER et al., "Quenching Cross Sections for Alkali-Inert Gas Collisions", Z. Phys., A291, 311 (1979) 18 B. A. GLUSHKO et al. "Processess of Stimulated Electronic Raman Scattering and Stimulated Resonance Emission in Potassium Vapor in the Presence of a Buffer Gas". Opt. Spectrosc (USSR), 52, 458 (1982) 19 A. A. DABAGYAN et al., "Stimulated Processes in Potassium Vapor in the Presence of a Buffer Gas", Sov. Phys., JETP, 58, 700 (1983) 20 A. A. DABAGYAN et al., "Development over time in the Induced Resonant Processes in Potassium Vapor, in the Presence of Collisions", Izvestiya Alademii Nauk, SSR, Seriya Fizicheskaya, 47, 1609 (1983)		10	W. R. HINDMARSH and	J. M. FARR, "Collision 1	Broadening of	Т
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and Shift of the Rubium D ₁ and D ₂ Lines by Rare Gases, H ₂ , D ₂ , N ₂ , CH ₄ , and CF ₄ ", J. Quant. Radiat. Transfer, 57, 497 (197) 13 L. KRAUSE, "Collisional Excitation Transfer Between the ² P _{1/2} and ² P _{3/2} Levels in Alkali Atoms", Applied Optics, 5, 1375 (1966) 14 E. S. HRYCYSHYN and L. KRAUSE, "Inelastic Collisions Between Excited Alkali Atoms and Molecules, VII. Sensitized Fluorescence and Quenching in Mixtures of Rubidium with H ₂ , HD, D ₂ , N ₂ , CH ₄ , CD ₄ , C ₂ , H ₄ , and C ₂ H ₆ .", Can. J. Phys., 48, 2761 (1970) 15 E. WALENTYNOWICZ, et. al., "Inelastic Collisions Between Excited Alkali Atoms and Molecules X. Temperature Dependence of Cross Sections for ² P _{1/2} - ² P _{3/2} Mixing in Cesium, Induced in Collisions with Deuterated Hydrogens, Ethanes, and Propanes", Can. J. Phys., 52, 589 (1974). 16 Z. KONEFAL, "Observation of Collision Induced Processes in Rubium-Ethane Vapour", Optics Communications, 164, 95 (1999) 17 E. SPELLIER et al, "Quenching Cross Sections for Alkali-Inert Gas Collisions", Z. Phys., A291, 311 (1979) 18 B. A. GLUSHKO et al. "Processess of Stimulated Electronic Raman Scattering and Stimulated Resonance Emission in Potassium Vapor in the Presence of a Buffer Gas". Opt. Spectrosc (USSR), 52, 458 (1982) 19 A. A. DABAGYAN et al., "Stimulated Processes in Potassium Vapor in the Presence of a Buffer Gas", Sov. Phys., JETP, 58, 700 (1983) 20 A. A. DABAGYAN et al., "Development over time in the Induced Resonant Processes in Potassium Vapor, in the Presence of Collisions", Izvestiya Alademii Nauk, SSR, Seriya Fizicheskaya, 47, 1609 (1983)		120				
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23 J. CZUB, J. FIUTAK, and Induced Amplified Emiss (1986)	W. MIKLASZEWSKI, "On Collision- tion of Alkali Atoms", Z. Phys., D3, 23
D1 Line", Opt. Spectrosc	MOVSESYAN, A. V. Papoyan, and S. V. Dnance Radiation at the Atomic-Potassium (USSR), 66, 686 (1989)
25 Z. KONEFAL and M. IGN	JACIUK, "Stimulated Collision Induced or in the Presence of Helium", Appl. Phys.,
26 Z. KONEFAL and M. IGN	ACIUK, "Observation of Collisionion in Na-Noble-Gas System", Z. Phys.,
27 Z. KONEFAL and M. IGN	ACIUK, "Investigation of Collisionally ring in Sodium Vapor with Temporal and I. Phys. R61 , 101 (1995)
J. CZUB, J. FIUTAK, and V Resonant Pulse Propagation	W. MIKLASZEWSKI, "Influence of on on Collision-Induced Stimulated Effects m", Phys. Rev., A54, 746 (1996).
Vapor in the Presence of M Quantum Electronics, 28, 1	ACIUK, "Stimulated Processes in Sodium folecular Buffer Gas Systems", Opt. And
30 R. J. BEACH, "CW Theory Oscillators", Opt. Commun	of Quasi-Three-Level End-Pumped Lasor
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